

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a semiconductor element having a plurality of electrodes;

5 a plurality of bonding portions of a lead frame;
a plate-like current path material which electrically connects at least one of the plurality of electrodes and one of said plurality of bonding portions; and

10 a housing which packages said semiconductor element having the plurality of electrodes, said plurality of bonding portions of the lead frame, and said current path material,

wherein said plate-like current path material is
15 arranged to be directly bonded to one of the plurality of electrodes and one of said plurality of bonding portions, and a middle portion of said current path material is formed apart from a surface of said semiconductor element, and

20 wherein the middle portion of said current path material is formed into an arch shape having a predetermined curvature.

2. A device according to claim 1, wherein said current path material is directly bonded to one of the
25 plurality of electrodes and one of said plurality of bonding portions by supersonic bonding.

3. A device according to claim 1, wherein said

current path material includes a plurality of current path materials, and said plurality of current path materials are directly bonded to one of the plurality of electrodes and one of said plurality of bonding portions.

4. A device according to claim 2, wherein said current path material includes a plurality of current path materials, and said plurality of current path materials are directly bonded to one of the plurality of electrodes and one of said plurality of bonding portions.

5. A device according to claim 2, wherein the middle portion of said current path material is formed into an arch shape having a predetermined curvature.

6. A device according to claim 3, wherein the middle portions of said plurality of current path materials are formed into an arch shape having a predetermined curvature.

7. A device according to claim 1, wherein a hole which passes a sealing resin serving as a mold material of said housing is formed in the middle portion of said current path material so as to extend through said current path material along a direction of thickness of said current path material.

8. A device according to claim 2, wherein a hole which passes a sealing resin serving as a mold material of said housing is formed in the middle portion of said

current path material so as to extend through said
current path material along a direction of thickness of
said current path material.

5 9. A device according to claim 3, wherein a hole
which passes a sealing resin serving as a mold material
of said housing is formed in the middle portion of said
current path material so as to extend through said
current path material along a direction of thickness of
said current path material.

10 10. A device according to claim 5, wherein a hole
which passes a sealing resin serving as a mold material
of said housing is formed in the middle portion of said
current path material so as to extend through said
current path material along a direction of thickness of
15 said current path material.

11. A device according to claim 1, wherein said
current path material is formed from an aluminum series
material.

20 12. A device according to claim 2, wherein said
current path material is formed from an aluminum series
material.

13. A device according to claim 3, wherein said
current path material is formed from an aluminum series
material.

25 14. A device according to claim 1, wherein said
current path material is connected between at least
a source electrode out of the plurality of electrodes

of said semiconductor element, and one of said plurality of bonding portions of the lead frame.

15 15. A device according to claim 1, wherein said current path material is connected between a source electrode out of the plurality of electrodes of said semiconductor element, and one of said plurality of bonding portions of the lead frame, and between a gate electrode and another one of said plurality of bonding portions of the lead frame.

10 16. A device according to claim 2, wherein said current path material is connected between a source electrode out of the plurality of electrodes of said semiconductor element, and one of said plurality of bonding portions of the lead frame, and between a gate
15 electrode and another one of said plurality of bonding portions of the lead frame.

17. A method of manufacturing a semiconductor device, comprising:

 forming a semiconductor element;
20 forming a plate-like current path material which connects at least one of a plurality of electrodes of the semiconductor element and one of a plurality of bonding portions of a lead frame;
 forming the current path material so as to space a
25 middle portion of the plate-like current path material apart from a surface of the semiconductor element;
 forming the middle portion of said current path

material into an arch shape having a predetermined curvature; and

electrically directly bonding two end portions of the current path material at one of the plurality of electrodes and one of the plurality of bonding portions
5 of the lead frame.

18. A method according to claim 17, wherein the directly bonding the two end portions of the current path material to one of the plurality of electrodes and
10 one of the plurality of bonding portions of the lead frame is performed by supersonic bonding.

19. A method according to claim 17, wherein the directly bonding the two end portions of the current path material to one of the plurality of electrodes and
15 one of the plurality of bonding portions of the lead frame is performed by simultaneous supersonic bonding.